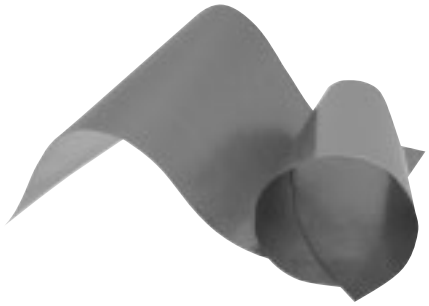
"PGS" Graphite Sheets

Type: **EYG**



PGS (Pyrolytic Graphite Sheet) is a thermal interface material which is very thin, synthetically made, has high thermal conductivity, and is made from a higly oriented graphite polymer film. It is ideal for providing thermal management/heat-sinking in limited spaces or to provide supplemental heat-sinking in addition to conventional means. This material is flexible and can be cut into customizable shapes.

■ Features

- Excellent thermal conductivity (2 to 4 times as high as copper, 3 to 6 time as high as aluminum)
- Lightweight: Specific gravity : 0.85 to 2.1 g/cm^3 (1/4 to 1/10 of copper, 1/1.3 to 1/3 of aluminum in density)
- Flexible and easy to be cut or trimmed. (withstands repeated bending)
- Low thermal resistance
- RoHS compliant

■ Recommended applications

- Cellular phone, DVC, DSC, PC and peripherals, pickup
- Semiconductor manufacturing equipment (Sputtering, Dry etching, Steppers)
- Optical communications equipment

■ Handling Precautions (See Page 182)

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12
E	Y	G	S	1	8	2	3	1	0		
Product Code				Dimension X (Short)		Dimension Y (Long)				Suffix	

Style	
S	PGS only
A	Taping
C	Coating
M	Other materials laminated

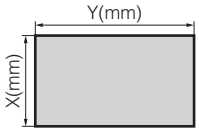
Thickness (mm)	
10	0.1
07	0.07
03	0.025

✻Custom product is suffix.

■ Dimensions in mm (not to scale)

Dimension of representative

Part No.	Dimension X (Short)✻	Dimension Y (Long)✻	Thickness (mm)
EYGS1823 10/07	180±5 mm	230±5 mm	0.10±0.03, 0.07±0.015
EYGS1218 10/07/03	115±5 mm	180±5 mm	0.10±0.03, 0.07±0.015, 0.025±0.010
EYGS0912 10/07/03	90±5 mm	115±5 mm	0.10±0.03, 0.07±0.015, 0.025±0.010

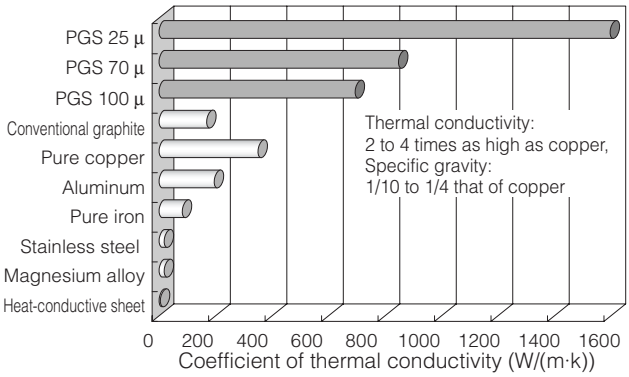


✻Please contact us for other dimensions other than those above.

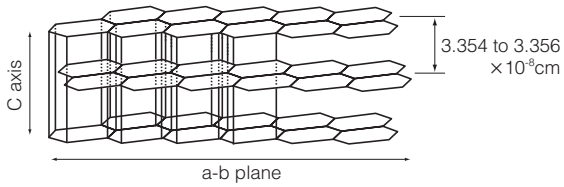
■ Characteristics

Characteristics		Specification	Specification	Specification
Thickness		0.10 ± 0.03 mm	0.07 ± 0.015 mm	0.025 ± 0.010 mm
Density		0.85 g/cm^3	1.1 g/cm^3	2.1 g/cm^3
Thermal conductivity	a-b plane	600 to 800 W/(m·K)	750 to 950 W/(m·K)	1500 to 1700 W/(m·K)
Electrical conductivity		10000 S/cm	10000 S/cm	20000 S/cm
Extensional strength		19.6 MPa	22.0 MPa	30.0 MPa
Expansion coefficient	a-b plane	9.3 × 10^{-7} 1/K	9.3 × 10^{-7} 1/K	9.3 × 10^{-7} 1/K
	c axis	3.2 × 10^{-5} 1/K	3.2 × 10^{-5} 1/K	3.2 × 10^{-5} 1/K
Heat resistance		400 °C		
Bending(angle 180,R5)		10000 cycles		

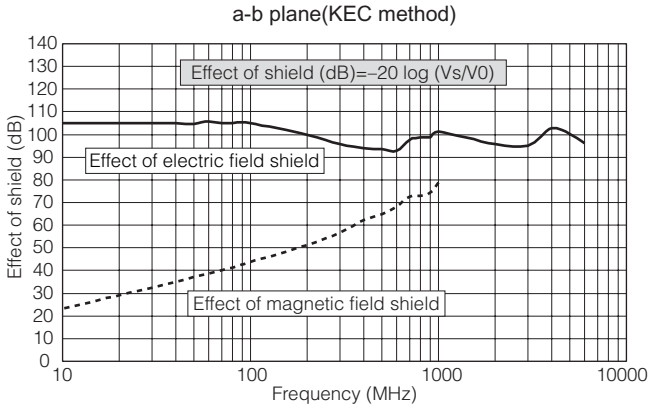
■ Thermal conductivity of PGS compared to other



■ Layered structure of PGS



■ Electric field shield performance



■ Rating and Characteristics

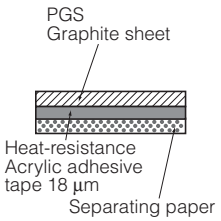
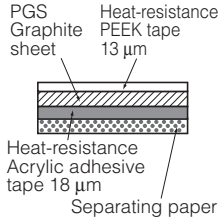
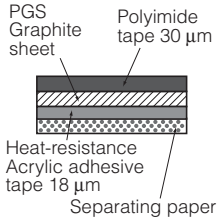
● Standard series (PGS 100, 70, 25 μm)

Type		PGS Only	Adhesive Type		Laminated type (Insulation & Adhesive)		
		S type	A-A type	A -M type	A-PA type	A-PM type	A-SM type
Front face		–	–	–	Polyester tape standard type 30 μm	Polyester tape standard type 30 μm	Polyester tape thin type 10 μm
Rear face		–	Insulative adhesion type 30 μm	Insulative thin adhesion type 10 μm	Insulative adhesion type 30 μm	Insulative thin adhesion type 10 μm	Insulative thin adhesion type 10 μm
Structure		PGS Graphite sheet	PGS Graphite sheet / Acrylic Adhesive tape 30 μm / Separating paper	PGS Graphite sheet / Acrylic Adhesive tape 10 μm / Separating paper	PGS Graphite sheet / Polyester(PET) tape 30 μm / Acrylic Adhesive tape 30 μm / Separating paper	PGS Graphite sheet / Polyester(PET) tape 30 μm / Acrylic Adhesive tape 10 μm / Separating paper	PGS Graphite sheet / Polyester(PET) tape 10 μm / Acrylic Adhesive tape 10 μm / Separating paper
Features		· High Thermal Conductivity High Flexibility · Low Thermal Resistance · Available up to 400 °C · Conductive Material	· With insulation material on one side · With strong adhesive tape for putting chassis · Withstanding Voltage : 2 kV	· With insulation material on one side · Low thermal resistance comparison with A-A type · Withstanding Voltage : 1 kV	· With insulation material on both side · Withstanding Voltage PET tape : 4 kV Adhesive Tape : 2 kV	· With insulation material on both side · Withstanding Voltage PET tape : 4 kV Adhesive Tape : 1 kV	· With insulation material on both side · Withstanding Voltage PET tape : 1 kV Adhesive Tape : 1 kV
Withstand temperature		400 °C	100 °C	100 °C	100 °C	100 °C	100 °C
Standard Size		115 × 180 mm	90 × 115 mm	90 × 115 mm	90 × 115 mm	90 × 115 mm	90 × 115 mm
Maximam size		180 × 230 mm 115 × 180 mm(25 μm)	115 × 180 mm	115 × 180 mm	115 × 180 mm	115 × 180 mm	115 × 180 mm
100 μm	Part No.	EYGS121810	–	–	–	–	–
	Thickness	100 μm	–	–	–	–	–
70 μm	Part No.	EYGS121807	EYGA091207A	EYGA091207M	EYGA091207PA	EYGA091207PM	EYGA091207SM
	Thickness	70 μm	100 μm	80 μm	130 μm	110 μm	90 μm
25 μm	Part No.	EYGS121803	EYGA091203A	EYGA091203M	EYGA091203PA	EYGA091203PM	EYGA091203SM
	Thickness	25 μm	55 μm	35 μm	85 μm	65 μm	45 μm

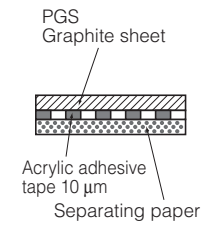
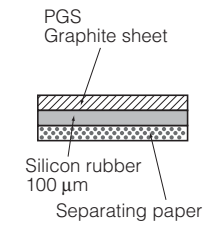
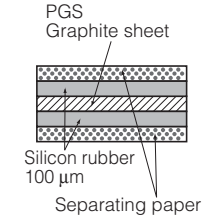
✻ Please contact our engineering section or factory about to special applications.

■ Rating and Characteristics

● High heat resistance series (PGS 70, 25 μm)

Type		high heat resistance type		
		A-V type	A-RV type	A-KV type
Front face		–	high heat resistance and insulation type 13 μm	high heat resistance and insulation type 30 μm
Rear face		High heat resistance and insulation adhesion type 18 μm	High heat resistance and insulation adhesion type 18 μm	High heat resistance and insulation adhesion type 18 μm
Structure				
Features		· With high heat resistance and insulation tape on one side · Withstanding Voltage Adhesive tape : 2 kV	· With high heat resistance and insulation tape on both side · Withstanding Voltage PEEK tape : 2 kV Adhesive tape : 2 kV	· With high heat resistance and more insulated tape on both side · Withstanding Voltage PI tape : 5 kV Adhesive tape : 2 kV
Withstand temperature		150 °C	150 °C	150 °C (Polyimide : 180 °C)
Standard Size		90 × 115 mm	90 × 115 mm	90 × 115 mm
Maximam size		115 × 180 mm	115 × 180 mm	115 × 180 mm
70 μm	Part No.	EYGA091207V	EYGA091207RV	EYGA091207KV
	Thickness	88 μm	101 μm	118 μm
25 μm	Part No.	EYGA091203V	EYGA091203RV	EYGA091203KV
	Thickness	43 μm	56 μm	73 μm

● Special processing (PGS 100 μm)

Type	Adhesive Type	Multilayered type	
	C-C type*	M-SS type*	M-SW type*
Front face	–	–	Printing Silicon rubber
Rear face	Printing Acrylic adhesive	Printing Silicon rubber	Printing Silicon rubber
Structure			
Features	· With pin point adhesive on one side due to the high thermal conductivity · Non-insulation	· With silicon rubber on one side to increase contact area with heat source and reduce thermal resistance · Minute cohesiveness · High heat resistance · Non-insulation	· With silicon rubber on both side to increase contact area with heat source and reduce thermal resistance · Minute cohesiveness · High heat resistance · Non-insulation
Withstand temperature	100 °C	180 °C	180 °C
Standard Size	90 × 115 mm	90 × 115 mm	90 × 115 mm
Maximam size	115 × 180 mm	115 × 180 mm	115 × 180 mm
Part No.	EYGC091210C	EYGM091210SS	EYGM091210SW
Thickness	110 μm	200 μm	300 μm

✻ C-C, M-SS, M-SW It becomes a production on orders about each type.
✻✻ Please contact our engineering section or factory about to special applications.

Minimum order

Item	Part No.	Type	Size	Minimum order
PGS Graphite Sheet Only	S type 100 μm	EYGS091210	90×115 mm	20
		EYGS121810	115×180 mm	10
		EYGS182310	180×230 mm	10
	S type 70 μm	EYGS091207	90×115 mm	20
		EYGS121807	115×180 mm	10
		EYGS182307	180×230 mm	10
	S type 25 μm	EYGS091203	90×115 mm	20
		EYGS121803	115×180 mm	10
PGS 70, 25 μm Adhesive Type [Standard series]	A-A type 70 μm	EYGA091207A	90×115 mm	20
		EYGA121807A	115×180 mm	10
	A-A type 25 μm	EYGA091203A	90×115 mm	20
		EYGA121803A	115×180 mm	10
	A-M type 70 μm	EYGA091207M	90×115 mm	20
		EYGA181207M	115×180 mm	10
	A-MM type 25 μm	EYGA091203M	90×115 mm	20
		EYGA121803M	115×180 mm	10
PGS 70, 25 μm Laminated Type (Insulation & Adhesive) [Standard series]	A-PA type 70 μm	EYGA091207PA	90×115 mm	20
		EYGA121807PA	115×180 mm	10
	A-PA type 25 μm	EYGA091203PA	90×115 mm	20
		EYGA121803PA	115×180 mm	10
	A-PM type 70 μm	EYGA091207PM	90×115 mm	20
		EYGA121807PM	115×180 mm	10
	A-PM type 25 μm	EYGA091203PM	90×115 mm	20
		EYGA121803PM	115×180 mm	10
	A-SM type 70 μm	EYGA091207SM	90×115 mm	20
		EYGA121807SM	115×180 mm	10
	A-SM type 25 μm	EYGA091203SM	90×115 mm	20
		EYGA121803SM	115×180 mm	10
PGS 70, 25 μm [High heat resistance type]	A-V type 70 μm	EYGA091207V	90×115 mm	20
		EYGA121807V	115×180 mm	10
	A-V type 25 μm	EYGA091203V	90×115 mm	20
		EUGA121803V	115×180 mm	10
	A-RV type 70 μm	EYGA091207RV	90×115 mm	20
		EYGA121807RV	115×180 mm	10
	A-RV type 25 μm	EYGA091203RV	90×115 mm	20
		EYGA121803RV	115×180 mm	10
	A-KV type 70 μm	EYGA091207KV	90×115 mm	20
		EYGA121807KV	115×180 mm	10
	A-KV type 25 μm	EYGA091203KV	90×115 mm	20
		EYGA121803KV	115×180 mm	10
PGS 100 μm [Special processing]	C-C type 100 μm	EYGC091210C	90×115 mm	20
		EYGC121810C	115×180 mm	10
	M-SS type 100 μm	EYGM091210SS	90×115 mm	20
		EYGM121810SS	115×180 mm	10
	M-SW type 100 μm	EYGM091210SW	90×115 mm	20
		EYGM121810SW	115×180 mm	10

✻✻ Please consult if the quantity of orders is little.